



30-17919

November 14, 2012

Document Control Desk
U.S. NUCLEAR REGULATORY COMMISSION
Washington, DC 20555

Re: Nuclear Density Gauge Damage Incident
Anderson Engineering, Inc.
Material License No. 24-20063-01, Amendment No. 17
Expiration Date: August 31, 2022

In accordance with 10 CFR 30.50 (c) (2) we are providing this written 30 day follow-up report due to our making an initial report on October 22, 2012 of a nuclear density gauge damage incident as required in 10 CFR 30.50 (b) (2). Our 30 day suspense for this written report is November 21, 2012.

The required information regarding the incident follows:

(i) A nuclear density gauge was damaged on a construction site. The probable cause is that the gauge operator completed a density test and walked away from the gauge to answer a question by the earthwork supervisor who was operating a dozer and while he was approximately 25 feet away from the gauge a towed scraper ran over the gauge.

The damaged nuclear density gauge is described as follows:

Manufacturer:	Campbell Pacific
Model No.	MC-1-DR
Serial No.	MD01205992

(ii) The exact location of the incident is:

Address:	New Joplin High School 2104 Indiana Avenue Joplin, Missouri 64804
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Latitude:	37.066705°
Longitude:	94.507417°

*IED7
RGN-III*

- (iii) The isotopes, quantities, and chemical and physical form of the licensed material involved within the gauge is:

Isotope:	Am241	Activity:	50 mCi
Isotope:	Cs137	Activity:	10 mCi

Source Description - Cylindrical double encapsulation made of stainless steel and tungsten inert gas seal welded. Approximate exterior dimensions are 9.14 mm in diameter and 14.73 mm in length. Minimum wall thickness of the outer encapsulation is 0.57 mm.

Radioactive Contents - No more than 4.6 Gbq (124.2 mCi) of Americium-241 and 4.6 Gbq (124.2 mCi) of Cesium-137. The Am-241 is in the form of an oxide mixed with a beryllium powder that is then pressed into a solid pellet. The Cs-137 is a cesium silicate formed in a glass matrix. Ceramic fiber packing material is inserted between the Am-241:Be and the Cs-137.

- (iv) The date and time of the incident was:

Date:	Monday, October 22, 2012
Time:	11:30 a.m. CDT

- (v) The gauge operator was counseled on required nuclear density gauge procedures the same day as soon as the site was cleared and the gauge was returned to the Anderson Engineering, Inc. lab storage facility at 915 E. 3rd St., Joplin, Missouri. This included the requirement for continuous visual observation of the gauge when it was out of the secure transportation box and the requirement that the gauge be properly secured in the transportation box before he allows the gauge to leave his site. We also reviewed methods of protection for the gauge and operator while it was being used such as placing the vehicle between the gauge and the working earthwork equipment.

On November 06, 2012, a training session was conducted for all authorized nuclear density gauge users of Anderson Engineering, Inc. The session included a review of the incident and lessons learned from the incident including:

- The gauge must remain under your direct vision and control at all times when it is outside the transport case.
- When finished taking a test, the gauge shall be returned to

the transport case.

- If you need to do something after taking a test, the gauge first must be returned to the transport case.
- Your truck should be between you and construction equipment.
- Your truck should be between the nuclear density gauge and construction equipment.
- Procedures to take if an accident occurs.

In addition, we plan to review this incident in detail at our upcoming annual safety training sessions for all authorized users.

- (vi) There was no exposure of individuals to radiation or to radioactive materials in this incident as discussed below.

A radiation survey was performed at the site of the incident on the afternoon of the incident using a TROX-A-LERT Model 3105 B radiation monitor. Readings at one meter from the gauge, while it was still on the ground where it had been damaged, were:

0.12 mrem/hr	from the west
0.12 mrem/hr	from the south
0.12 mrem/hr	from the east
0.20 mrem/hr	from the north

Readings were taken on the soil where the gauge had sit and on the scraper which had run over the gauge and the readings were below the limit of the radiation monitor which was 0.08 mrem/hr. The gauge was placed in the transport box on the pickup and returned to the lab. Readings were taken on the truck and the transport box and the readings were below the limit of the radiation monitor.

On October 25, 2012 we performed readings on the damaged gauge with and without lead shielding wrapped around the gauge. At a distance of about 1 inch we got about 5 mrem/hr unshielded and 1 mrem/hr with lead shielding around the gauge.

A wipe sample was taken on the gauge on October 30, 2012 with the test performed on October 31, 2012 by Qual-Tek Associates and the gauge passed (see attached Sealed Radioactive Source Leak Test Report).

The dosimeters of the gauge technician and the lab manager were sent to Mirion Technologies on November 12, 2012. The results did not show any exposure (see attached Occupational Radiation Exposure Report - The field technician was using the badge labeled Spare and the lab manager was using the badge labeled White).

We contacted the manufacturer of the damaged nuclear density gauge to make arrangements to have the gauge repaired. As directed, we shipped the damaged gauge to Instro-Tek, Inc. - INST at 5908 Triangle Drive, Raleigh, NC on November 08, 2012. A copy of the STRAIGHT BILL OF LADING is enclosed.

Should you have any questions or require additional information please give myself (417-866-2741) or John Snider (1-417-782-7399) a call.

Respectfully submitted,

ANDERSON ENGINEERING, INC.

by


Steven L. Brady, P.E., CEO
Radiation Safety Officer

Attachments: Sealed Radioactive Source Leak Test Report - SN MD01205992
Occupational Radiation Exposure Report - Gauge Operator & Lab Mgr.
Straight Bill of Lading for Shipment of Damaged Gauge for Repair

cc. U.S. Nuclear Regulatory Commission
Region III
801 Warrenville Road
Lisle, IL 60532-4351

Bill Lin
Region III - NRC
2443 Warrenville Rd., Suite 210
Lisle, IL 60532-4352



www.qaltek.com

Qal-Tek Associates

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 Round Rock, TX 78681
 Ph: 512 407-9252
 Fax: 512 407-9831

3998 Commerce Circle
 Idaho Falls, ID 83401
 Ph: 208 523-5557
 Fax: 208 524-8470

557 East Juanita Ste 6
 Mesa, AZ 85204
 Ph: 480 304-5199
 Fax: 480 966-9495

SEALED RADIOACTIVE SOURCE LEAK TEST REPORT

Company: Anderson Engineering, Inc.
 Street: 2045 West Woodland Ave
 City/ST/Zip: Springfield, MO 65807
 Phone: 417-866-2741

Acct#: 1679

Ref#: W4728-018764

Fax: 417-866-2778

Serial Number: **5992**

Mfg: CPN

Model: MC-1DR

Leak Test Date: 31-Oct-2012

Leak Test Due Date: 01-May-2013

Test Instrument

Test Instrument	Ludlum : 2929 : 158808
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Test Instrument Info

MDA	less than 0.005 µCi
α efficiency	37.42
β efficiency	31.42
Det. Type	ZnS (Ag)
Last Cal. Date	11-Oct-2011

Test Results

Isotope	Activity	net a CPM	net b/g CPM	net a µCi	net b/g µCi	Pass/Fail
Am241	50 mCi	1	0	0.000002	0	Pass
Cs137	10 mCi	0	0	0	0	Pass

Instrument Technician: Tom Summers

Date of Service: 31-Oct-2012

Qal-Tek Associates certifies that all leak test measurements are performed in accordance with NRC licensee requirements for isotopic detection limits. For this purpose the MDA is below the NRC regulatory limits of <0.005 uCi

Hutchinson, Angie

From: Jessica August [JAugust@InstroTek.com]
Sent: Friday, December 14, 2012 4:06 PM
To: Hutchinson, Angie
Subject: FW: Invoice 43524 from InstroTek, Inc.
Attachments: Anderson - BOL.pdf; Emergency Reponse.pdf; License #1100-07.pdf

-----Original Message-----

From: Jessica August [mailto:JAugust@InstroTek.com]
Sent: Thursday, November 08, 2012 9:27 AM
To: 'Cody White'
Subject: RE: Invoice 43524 from InstroTek, Inc.

Hello Cody,

Please see the attached. Attached you will see (1) Copy of the R&L Bill of Lading and (1) Copy of our Emergency Response Form. All you will need to do is print (2) copies of each attachment & sign each Bill of Lading in the bottom left corner underneath your company name and then staple a copy of the Emergency Response form to either copy.

R&L Trucking will be doing this pickup; and their driver will be there sometime this afternoon between 1:00PM – 4:00PM, and I have given your name and number as the point of contact. When they arrive they will place (1) sticker on either copy of the Bill of Lading. One copy should go with the driver & the other copy should remain with you (the sticker they place on your copy will reference a number; this is the tracking number for this shipment.)

The transit time 3 days not including the day of pickup, so we should receive your unit in house next week on Wednesday, November 14th. Upon receipt of the gauge I will send you a confirmation e-mail just letting you know the gauge has been received.

I also included a copy of our Radioactive Materials License. You will want to keep this on file. If you could please send me a copy of your license as well it would be greatly appreciated. I will need a copy on file before shipping your gauge back to your facility.

If you have any questions / concerns please feel more than free to contact me directly, and I will be more than happy to assist you. I hope you have a beautiful day & week!

Best Regards,

Jessica August
Inside Sales
(p) 925.363.9770 | (f) 925.363.9385
5052 Commercial Dr. | Concord, CA 94520

www.instrotek.com
Skype: jessica.august7

-----Original Message-----

From: Cody White [mailto:cwhite@aeincmo.com]

STRAIGHT BILL OF LADING
ORIGINAL - NOT NEGOTIABLE



PLEASE PLACE
PRO LABEL IN BOX

P.O. BOX 271 WILMINGTON, OHIO 45177-0271
(800) 356-0319 Carrier's Haz-Mat Assistance
Call (800) 543-5589 to schedule a pickup.

WEB PRO: WZ1217835

DATE 11/08/2012	CONSIGNEE PHONE (925) 363-9770	SHIPPER PHONE (417) 782-7399
TO: CONSIGNEE InstroTek, Inc. - INST32 5052 Commercial Circle CONCORD, CA 94520 USA Attn: Service Dept / Jessica August		FROM: SHIPPER Anderson Engineering 811 E Third Street JOPLIN, MO 64801 USA



HAZMAT EMERGENCY PHONE NO. (800) 535-5053	CONTRACT #: 83301 OFFERER/CONTRACT HOLDER InstroTek, Inc.
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BILL TO: THIRD PARTY InstroTek, Inc. - INST 5908 Triangle Drive RALEIGH, NC 27617 USA	COD TOTAL \$ AMOUNT \$
SHIPPERS NO. Incoming Service	Check Appropriate Box: <input type="checkbox"/> Certified Check <input type="checkbox"/> Company Check
PURCHASE ORDER NO.	COD FEE PREPAID <input type="checkbox"/> TO BE COLLECT <input type="checkbox"/> On a Collect On Delivery shipment(s), the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec. 1.
QUOTE NO. 7560100	REMIT COD TO:
	Freight charges are PREPAID unless marked collect. CHECK BOX IF COLLECT <input type="checkbox"/>

NO. SHIPPING UNITS	PKG. TYPE	HM	KIND OF PACKAGE, DESCRIPTION OF ARTICLES, SPECIAL MARKS, AND EXCEPTIONS	NMFC ITEM NO.	CLASS	WEIGHT(LB) SUBJ TO CORR
1	ctn	X	RQ, UN3332, RADIOACTIVE MATERIAL, TYPE A PACKAGE, SPECIAL FORM, 7, NON-FISSILE OR FISSILE EXCEPTED, Cs-137, 370MBq (10mCi) Am-241/Be, 1.85GBq (50mCi) YELLOW II TRANSPORT INDEX--0.4	164900 Sub 1	70	80

Note 1 - Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding.

\$ _____ per _____

Note 2 - Liability limitations for loss or damage on this shipment may be applicable. See 49 U.S.C. § 14706(c)(1)(A) and (B).

Note 3 - Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation with ordinary care. See Sec2(e) of NMFC Item 360.

RECEIVED, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and shipper, if applicable, otherwise to the rates, classifications and rules that have been established by the carriers and are available to the shipper, on request; the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Bill of Lading set forth in the National Motor Freight Classification 100-X and successive issues.
Shipper hereby certifies that he is familiar with all the terms and conditions in the said bill of lading including those on the back thereof and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

This is to certify that the below-named materials are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

SHIPPER Anderson Engineering	CARRIER R+L Carriers
PER X	PER X

SPECIAL INSTRUCTIONS:
*Qty. 1 orange plastic molded shipping case at 80 lbs. DO NOT DROP, CRUSH, LEAN ON SIDE, RIGHT ON, OR DAMAGE IN ANYWAY. THIS ITEM IS HAZMAT, FRÁGILE, VERY EXPENSIVE, AND PERSONAL PROPERTY. HANDLE ACCORDINGLY.

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement.
The carrier shall not make delivery of this shipment without payment of freight and all other charges.

(Signature of Consignor)

* Mark with "X" to designate Hazardous Materials as defined in Title 49 of the Code of Federal Regulations, and insert Shipper's Haz-Mat Emergency Phone No.